

## **07. Endogenous GHB level in human hair: comparison of different washing methods**

**LATA GAUTAM AND BARBARA GOTTARDI**

*Department of Life Sciences, Anglia Ruskin University, Cambridge*

*Lata.Gautam@anglia.ac.uk, barbara\_67@hotmail.com*

GHB ( $\gamma$ -hydroxy butyric acid) is naturally present in our body; hence it is an endogenous drug. It has shorter half life (about 30 minutes), therefore, blood and urine sample can pose difficulty in its detection. Few studies have successfully used hair samples as an alternative to the blood and urine. However, different researchers have used different washing protocol and extraction methods. There is a growing debate on the use of method that has no effect on the drug itself during its extraction. No studies have reported which method is good for GHB analysis. Hence this study aims at using different washing method to see whether or not the difference in concentration of endogenous GHB detected in hair is due to the presence of different amount of GHB or different methods used for washing hair sample.

Three different methods of hair washing from literature are used to wash hair from 18 subjects. Hair from the same subject is used to compare three washing procedures. Each sample is run in triplicate. Samples are analysed by using Shimadzu QP2010 GC/MS in electron impact ionisation (EI) mode. Samples are derivatised by silylation using BSTFA: TMCS (99:1%) in presence of ethyl acetate. 2-hydroxy-3-methyl-butyric acid is used as an internal standard (IS). For quantification  $m/z$  145 is used for IS ion and  $m/z$  233 is used for GHB ion.

Different factors play a role in drug incorporation to human hair. Hence a questionnaire is designed in a way to gain information on those factors such as sex, ethnicity, smoking, drinking habits, exercise, hair treatment etc. For example, hair treatment by bleaching increases porosity of the hair, therefore the concentration detected might not reflect the real concentration. Information from questionnaire is used for the discussion of results. This research has ethics approval from Anglia Ruskin University.